Mariah H. Meek

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EDUCATION

PhD in Ecology, University of California, Davis 2010
Title: "Invasion biology of three species of hydrozoans in the upper San Francisco Estuary"
Advising Professor: Dr. Bernie May

Bachelor of Science, University of Washington, Seattle, WA 2000
Honors College, Biology and Zoology majors, Fisheries minor

RESEARCH AND PROFESSIONAL EXPERIENCE

Post-doctoral Researcher, University of California, Davis 2010-present

- Investigating the use of steelhead (*Oncorhynchus mykiss*) in restoration and reintroduction programs
- Evaluating the conservation genetics of California Chinook salmon (*Oncorhynchus tshawytscha*) using SNPs and next-generation sequencing techniques
- Investigating adult and juvenile Chinook salmon habitat use of and thermal stress in the Yolo Bypass on the Sacramento R.

Graduate Student Researcher, University of California, Davis 2003-2010

- Researched the invasion biology of 3 species of hydrozoans (*Maeotias marginata, Cordylophora caspia, Moerisia sp.)* in the San Francisco Estuary
- Analyzed clonal diversity and asexual and sexual reproduction in the invasions
- Developed microsatellite markers for *M. marginata* and *Moerisia sp.*
- Determined feeding rates and physiological tolerances of *C. caspia* through lab experiments
- Co-coordinated and executed Suisun Marsh Monthly Fish Sampling Program

Conservation Science Intern, World Wildlife Fund, Washington, D.C. 2009-2010

- Investigated biodiversity of fishes using the Freshwater Ecoregions of the World database
- Updated and maintained Freshwater Ecoregions of the World database

Environmental Scientist, Windward Environmental, Seattle, WA 2001-2003

- Located and prioritized salmonid restoration projects using field studies and habitat equivalency analysis modeling
- Interacted with land owners to investigate restoration possibilities on their land
- Designed, managed, and conducted aquatic field studies
- Conducted contaminated sediment assessment and management, natural resource damage assessment, and ecological risk assessment

Research Technician, Univ. of Wa., Seattle, WA 2000

- Researched the use of Willipa Bay, WA and Coos Bay, OR as a rearing environment for crabs and fishes

Database Coordinator, Fisheries Research Inst., Univ. of WA, Seattle, WA 1999-2000

- Created and maintained a database for biological and physical data

RESEARCH AND PROFESSIONAL EXPERIENCE (continued)

Aquatic Ecological Research in Alaska Field Course, Univ. of WA, Seattle, WA 1999

- Conducted field studies of abundance, survival, migration, spawning behavior, and habitat use of adult and juvenile sockeye salmon in Alaska
- Developed and completed independent project investigating the effect of juvenile density and lake temperature on age at smoltification

Howard Hughes Research Intern, Univ. of WA, Seattle, WA 1998

- Independently designed and completed research project examining shorebird movement and behavior patterns at Big Beef Creek estuary on Hood Canal, WA

Research Assistant, Univ. of WA, Seattle, WA 1998

- Researched the trophic ecology and life history of cutthroat trout in Lake Washington, WA
- Processed stomach samples from cutthroat trout for diet analyses
- Analyzed scale samples to determine fish age, lake entry, and spawning status

MENTORING AND TEACHING EXPERIENCE

Mentoring:

- Supervise 2 laboratory technicians and 1 undergraduate intern 2010-present
- Interviewed, hired, and supervised five undergraduate assistants for dissertation research 2007-2010

Instructor, Graduate seminar-Conservation of extremely small populations, University of CA, Davis 2011

- Taught weekly seminar class of 12 graduate students

Teaching Assistant, Introductory Biology (BIS 1B), University of CA, Davis 2005-2006

- Independently taught two laboratory class sections of 30 students each
- Topics covered include transmission and population genetics, micro and macroevolution, systematics, classification, and a survey of major animal phyla

CA Subject Exam for Teachers Prep Class Instructor, San Diego Cnty School Dist, CA 2003-2004

- Taught Multiple Subjects Science preparatory class for elementary school teachers about to take the state required California Subject Examination for Teachers
- Topics included test taking strategies and physical, life, and earth science

Elementary Science Teacher, San Diego State University, San Diego, CA 2003-2004

- Developed and taught inquiry based science lessons in San Diego County, CA elementary schools through the Partnerships Involving the Scientific Community and Elementary Schools program
- Worked with elementary school teachers to improve their inquiry based science instruction

RESEARCH GRANTS AND FELLOWSHIPS

- Fundraising for Symposium on the Conservation of Extremely Small Populations 2011-2012
  $4,500—UC Davis College of Agriculture and Environmental Science Programmatic Initiative Grant
  $750—UC Davis John Muir Institute of the Environment
  $500—UC Davis REACH IGERT
  $80—Lagunitas Brewery beverage donation
- CALFED Ecosystem Restoration Program Grant, co-principal investigator 2012
  $878,020, Research Funds
- UC Davis CA&ES Programmatic Initiatives, co-principal writer (PI: May, B.) 2010
  $4,500, Symposium Funding

RESEARCH GRANTS AND FELLOWSHIPS (cont.)

- NOAA DR. Nancy Foster Scholarship 2006-2010
  $32,000/yr, Tuition, Fees, and Stipend
- CALFED Science Program Grant, co-principal writer (PIs: May, B. and Moyle, P.) 2007
  $430,870, Research Funds
- Genetic Resources Conservation Program, principal writer (PI: May, B.) 2007
  $3600, Research Funds
- UC Davis Biological Invasions IGERT Short-term Fellowship 2007
  $500, Research Funds
- UC Davis Jastro Shields Scholarship 2007
  $500, Research Funds
- San Diego State University Doctoral Research Grant 2004, 2005
  $1000/yr, Research Funds
- Achievement Rewards for College Scientists (ARCS) Foundation Grant 2004, 2005
  $7500/yr, Cash Award
- University of California Bodega Marine Laboratory Travel Grant 2005
  $553, Research Funds
- Rancho Santa Fe Garden Club Scholarship 2004
  $1500, Research Funds Achievement Rewards for College Scientists

PEER REVIEWED PUBLICATIONS

Meek, M., A. Wintzer, N. Elen, and B. May. 2012. Genetic diversity and reproductive mode in two non-native hydromedusae, *Maeotias marginata* and *Moerisia* sp., in the Upper San Francisco Estuary, California. Biological Invasions. Accepted.

Meek, M. A. Wintzer, W. Wetzel, and B. May. 2012. Climate change likely to facilitate the invasion of the non-native hydroid, *Cordylophora caspia*, in the San Francisco Estuary, CA. PLoS ONE. In review.

Blickley, J., K. Deiner, K. Garbach, I. Lacher, **M. Meek***, L. Porensky, M. Wilkerson, E. Winford, and M. Schwartz. 2012. A graduate student's guide to necessary skill sets for conservation careers outside academia. Conservation Biology. In review. *Order for first 8 authors determined alphabetically as all contributed equally.

Wintzer, A., **M. Meek**, P. Moyle, and B. May. 2011. Ecological insights into the polyp stage of non-native hydrozoans in the San Francisco Estuary. Aquatic Ecology. 5(2): 151-161.

Wintzer, A., **M. Meek**, and P. Moyle. 2011. Trophic ecology of two non-native hydrozoans in the upper San Francisco Estuary: implications for the Pelagic Organism Decline. Marine and Freshwater Res. 62(8): 952-961. **Cover story.**

Wintzer, A., **M. Meek**, and P. Moyle. 2011. Life history and population dynamics of *Moerisia* sp., a non-native hydrozoan in the upper San Francisco Estuary (U.S.A.). Estuarine Coastal and Shelf Sci. DOI:10.1016/j.ecss.2011.05.017.

Baerwarld, M., M. Stephens, K. Bork, **M. Meek**, K. Tomalty, and B. May. 2011. Spring-run Chinook salmon genetic management plan. San Joaquin River Restoration Program. 124 pp.

Meek, M., M. Baerwald, A. Wintzer, and B. May. 2009. Isolation and characterization of microsatellite loci in two non-native hydromedusae in the San Francisco Estuary: *Maeotias marginata* and *Moerisia* sp. Conservation Genetics Resources. 1(1): 205-208.

TECHNICAL REPORTS

Wintzer, A. and **M. Meek**. 2011. Notes on the morphology and ecology of non-native hydrozoa benthic stages in the brackish waters of the San Francisco Estuary. Interagency Ecological Program Newsletter. 24(3):12-16. http://www.water.ca.gov/iep/newsletters/2011/IEPNewsletterFinalSummer2011.pdf

Wintzer, A., **M. Meek**, P. Moyle, and B. May. 2011. Predicting the effects of invasive Hydrozoa (jellyfish) on pelagic organisms under changing salinity and temperature regimes. Final report submitted to CALFED Science Program. 13 pp.

Meek, M., A. Wintzer, B. May, and P. Moyle. 2010. Predicting the effects of invasive Hydrozoa (jellyfish) on pelagic organisms under changing salinity and temperature regimes. Semi-annual project report #5 submitted to CALFED Science Program. 9 pp.

Wintzer, A., **M. Meek**, P. Moyle, and B. May. 2009. Predicting the effects of invasive Hydrozoa (jellyfish) on pelagic organisms under changing salinity and temperature regimes. Semi-annual project report #4 submitted to CALFED Science Program. 9 pp.

Meek, M., A. Wintzer, B. May, and P. Moyle. 2008. Predicting the effects of invasive Hydrozoa (jellyfish) on pelagic organisms under changing salinity and temperature regimes. Semi-annual project report #3 submitted to CALFED Science Program. 8 pp.

Wintzer, A., **M. Meek**, P. Moyle, and B. May. 2008. Predicting the effects of invasive Hydrozoa (jellyfish) on pelagic organisms under changing salinity and temperature regimes. Semi-annual project report #2 submitted to CALFED Science Program. 7 pp.

Meek, M., A. Wintzer, B. May, and P. Moyle. 2007. Predicting the effects of invasive Hydrozoa (jellyfish) on pelagic organisms under changing salinity and temperature regimes. Semi-annual project report #1 submitted to CALFED Science Program. 5 pp.

SERVICE

- Convened and organized symposium on the conservation of extremely small populations 2011-present
  http://animalscience.ucdavis.edu/SaveSmallPops
- Committee member: 2010-present
  Inter-agency Ecological Program Salmonid Genetic Project Work Team, Inter-agency Ecological Program Yolo Bypass Project Work Team, San Joaquin River Restoration Program Subgroups: Genetics, Conservation Facility, and Reintroduction Monitoring
- Student and Landowner Education and Watershed Stewardship Mentor 2007-present
- Genomic Variation Lab Safety Officer 2007-2009, Lab Meeting Manager 2009-2010
- Student rep. “Exploring New Opportunities for Educating Conservation Professionals” workshop 2010
- UC Davis Graduate Group in Ecology Awards Committee 2008-2009
- UC Davis Graduate Group in Ecology Chair Search Committee 2008-2009
- Davis Junior High School Global Warming Project 2007
- University of CA, Davis Graduate Group in Ecology Admissions Committee 2007
- University of CA, Davis Graduate Student Association Student Representative 2006-2007
- University of CA, Davis College of Ag. and Env. Science Faculty Hiring Committee 2006
- University of CA, Davis Ecology Graduate Student Association Committee Chair 2005-2006
- University of CA, Davis Ecology Graduate Student Association Retreat Planning Committee 2006
- Science Fair Judge - Brookfield Elementary School, Sacramento, CA 2006
- Society for Conservation Biology 2006 Meeting Abstract Review Committee 2006
- Graduate Student Leader - University of CA, Davis Graduate Group in Ecology Orientation 2005

HONORS

- University of California-Davis Hillyer Service Award 2010
- Presidential Management Fellowship Finalist 2010
- National Science Foundation Graduate Research Fellowship Honorable Mention 2005
- University of Washington Dean's List 1996-2000
- Golden Key International Honour Society 1997
- Phi Etta Sigma National Honor Society 1996
- Women in Science, Math, and Technology Saturday Academy honoree 1994

PRESENTATIONS

"Transcriptome response to acute thermal stress in juvenile Chinook salmon" 2012
Poster presentation
Tomalty, K., M. Stephens, N. Fangue, **M. Meek**, B. May, and M. Baerwald
Plant and Animal Genome XX Conference, San Diego, CA

"Hatchery and Genetic Management of Salmon Re-Introduction in the San Joaquin River, CA" 2011
Oral presentation
Meek, M., K. Bork, M. Baerwald, M. Stephens, K, Tomalty, and B. May
American Fisheries Society Annual Meeting, Seattle, WA

"Genetic diversity and population dynamics of *Moerisia* sp., an invasive hydromedusa in the San Francisco Estuary" *Oral presentation* 2010
Meek, M., A. Wintzer, N. Elen, B. May, and P. Moyle
Ecological Society of America Annual Meeting, Pittsburgh, PA

"Sex, clones, and Suisun Marsh: Genetic diversity and reproductive mode in two species of invasive hydromedusae in the upper San Francisco Estuary" *Oral presentation* 2010
Meek, M., A. Wintzer, N. Elen, and B. May
6th Biennial Bay Delta Science Conference, Sacramento, CA

"To Clone or Not to Clone? Genetic analyses of clonal diversity and sexual reproduction in an invasive hydrozoan jelly in the San Francisco Estuary" *Oral presentation* 2009
Meek, M., A. Wintzer, and B. May
Coastal and Estuarine Research Federation Biennial Conference, Portland, OR

"Ecological Insights into the Polyp Stage of Non-native Hydrozoa in the Upper San Francisco Estuary" *Poster presentation* 2009
Wintzer, A., **M. Meek**, P. Moyle, and B. May
Coastal and Estuarine Research Federation Biennial Conference, Portland, OR

"Cnidarians" *Invited Lecture* 2009
Meek, M.
Introduction to the Marine Environment, American River College, Sacramento, CA

"Rise of the slime—why it is important to care about jellies" *Oral presentation* 2009
Meek, M.
World Wildlife Fund, Conservation Science Program meeting, Washington, D.C

"Feeding rates of an invasive hydrozoan jellyfish in Suisun Marsh" *Oral presentation* 2008
Meek, M., A. Wintzer, and B. May
CALFED Science Conference, Sacramento, CA

PRESENTATIONS (cont.)

"The Secret Lives of Polyps: Ecological insights into the benthic stage of non-native jellyfish in the San Francisco Estuary" *Oral presentation* 2008
Wintzer, A., **M. Meek**, P. Moyle, and B. May
CALFED Science Conference, Sacramento, CA

"Clonal diversity, reproductive mode, and physiological tolerances in three species of invasive hydrozoans" *Poster presentation* 2007
Meek, M., M. Baerwald, A. Wintzer, and B. May
State of the Estuary Conference, Oakland, CA

"Characterization of microsatellite markers for three species of invasive hydrozoans in the San Francisco Estuary" *Poster presentation* 2007
Meek, M., M. Baerwald, A. Wintzer, and B. May
American Fisheries Society Annual Meeting, San Francisco, CA

"The Secrets to Successful Invasions: Clonal diversity, reproductive mode, and physiological tolerances in three species of invasive hydrozoans" *Poster presentation* 2007
Meek, M., M. Baerwald, and B. May
International Jellyfish Blooms Symposium, Gold Coast, Australia

"Effects of temperature and density on age and growth rate of sockeye salmon smolts in Lake Iliamna, AK" *Oral presentation* 1999
M. Meek
Fisheries Research Institute Annual Alaska Salmon Research Symposium, Seattle, WA

ADDITIONAL SKILLS

- Extensive field experience, using many sampling techniques including sediment sampling, seining, otter and midwater trawling, habitat and stream surveys, electrofishing, and mark and recapture
- Knowledgeable in genetic and laboratory techniques
- Species distribution modeling experience
- PADI Certified SCUBA Diver
- Skilled boat handler
- Scientific filmmaking experience
- Excellent written and oral skills
- Diverse computer experience, including use of R, SAS, ArcGIS, SigmaPlot, Microsoft Access, Microsoft Excel, PAUP*, Mr. Bayes, GeneMapper, and Arlequin
- Work well in remote field locations for extended periods of time

JOURNAL AND PROPOSAL REVIEWS

- Molecular Ecology
- Conservation Genetics
- Canadian Journal of Fisheries and Aquatic Sciences
- The Open Fish Journal
- Washington Sea Grant 2012-2014 funding cycle
- Arctic-Yukon-Kuskokwim Sustainable Salmon Initiative

PROFESSIONAL AFFILIATIONS

American Society of Naturalists
Society for Conservation Biology